

IN THE CLAIMS:

1. (Currently Amended) An endoscopic mucous membrane resection instrument comprising:

a transparent cap section detachably attached to a distal end portion of an endoscope, the cap section including a cylindrical body having a distal end and a proximal end substantially circular shape, a flange-like first projection portion projecting inward from the cylindrical body in a vicinity of a distal end edge of the cylindrical body, and a second projection portion that projects inward and is provided on an inner peripheral surface of the cylindrical body at a position spaced apart from the first projection portion;

a flexible tube for insertion of treatment instruments, the tube having a distal end portion and a proximal end portion, the tube being extended along an insertion section of the endoscope and the distal end portion of the tube being fixed in a state in which the distal end portion of the tube communicates with the cap section, when the cap section is attached to the endoscope;

a first endoscopic treatment instrument for a mucous membrane resection work, which has an insertion section to be removably inserted in the tube, the first treatment instrument having a first loop portion for mucous membrane resection at a distal end portion of the insertion section thereof, the first loop portion being inserted in the tube such that it is projected from the distal end of the tube broadened and disposed along an inner peripheral surface of the cylindrical body in a state in which the first loop portion is engaged with the first projection portion, when the insertion section of the first endoscopic treatment instrument is inserted in the tube; and

an engagement portion which is provided at the distal end portion of the cylindrical body of the cap, the engagement portion being configured to removably fix the first treatment instrument at a first fixing position inside the cylindrical body;

a second endoscopic treatment instrument having an insertion section to be removably inserted in the tube, the second endoscopic treatment instrument being inserted in the tube when the first treatment instrument is extracted from the tube after a first mucous membrane resection work by the first endoscopic treatment instrument, thereby performing a second mucous membrane resection work, the second treatment instrument having a second loop portion for mucous membrane resection at a distal end portion of the insertion section thereof, the second loop portion being broadened and disposed along the inner peripheral surface of the cylindrical body in a state in which the second loop portion is engaged with the second projection portion, when the insertion section of the second endoscopic treatment instrument is inserted in the tube; and

an abutting portion which is provided in the cylindrical body of the cap, the abutting portion being configured to introduce the second loop portion to a second fixing position inside the cylindrical body when the second treatment instrument is inserted in the tube, and the second fixing position introduced by the abutting portion being closer to the proximal end of the cylindrical body than the first fixing position.

2. (Original) The endoscopic mucous membrane resection instrument according to claim 1, wherein each of the first endoscopic treatment instrument and the second endoscopic treatment instrument is a diathermic snare in which each of the first and second loop portion is formed of a snare wire.

3. (Currently Amended) An endoscopic mucous membrane resection instrument comprising:

a transparent cap section detachably attached to a distal end portion of an endoscope, the cap section including a cylindrical body having a distal end and a proximal end substantially circular shape, and a flange like projection portion projecting inward from the cylindrical body in a vicinity of a distal end edge of the cylindrical body;

a plurality of first and second flexible tubes for insertion of treatment instruments, each of the first and second tubes having a distal end portion and a proximal end portion, each of the tubes being extended along an insertion section of the endoscope and the distal end portion of the tube being fixed in a state in which the distal end portion of the tube communicates with the cap section, when the cap section is attached to the endoscope;

a first endoscopic treatment instrument for a mucous membrane resection work, which has an insertion section to be removably inserted in one of the tube first tube, the first treatment instrument having a first loop portion for mucous membrane resection at a distal end portion of the insertion section thereof, the first loop portion being inserted in the first tube such that it is projected from the distal end of the tube broadened and disposed along the inner peripheral surface of the cylindrical body in a state in which the first loop portion is engaged with the projection portion, when the insertion section of the first endoscopic treatment instrument is inserted in the tube; and;

a first engagement portion which is provided at the distal end portion of the cylindrical body of the cap, the first engagement portion being configured to removably fix the first loop portion at a first fixing position inside the cylindrical body;

a second endoscopic treatment instrument for a mucous membrane resection work having an insertion section to be removably inserted in the second tube ~~ether than the tube in which the first endoscopic treatment instrument is inserted~~, the second treatment instrument having a second loop portion for mucous membrane resection at a distal end portion of the insertion section thereof, ~~the second loop portion being broadened and disposed along the inner peripheral surface of the cylindrical body in a state in which the second loop portion is engaged with the projection portion, when the insertion section of the second endoscopic treatment instrument is inserted in the tube.~~; and

a second engagement portion which is provided at the distal end portion of the cylindrical body of the cap, the second engagement portion being configured to removably fix the second loop portion at a second fixing position inside the cylindrical body, and the second fixing position at which the second loop portion is fixed by the second engagement portion being closer to the proximal end of the cylindrical body than the first fixing position.

4. (Original) The endoscopic mucous membrane resection instrument according to claim 3, wherein each of the first endoscopic treatment instrument and the second endoscopic treatment instrument is a diathermic snare in which each of the first and second loop portion is formed of a snare wire.

5. (Currently Amended) An endoscopic mucous membrane resection instrument comprising:

a transparent cap section detachably attached to a distal end portion of an endoscope, the cap section including a cylindrical body having a distal end and a proximal end ~~substantially circular shape, a flange-like first projection portion projecting inward from the cylindrical body in a vicinity of a distal end edge of the cylindrical body, and a second~~

~~projection portion that projects inward and is provided on an inner peripheral surface of the cylindrical body at a position spaced apart from the first projection portion;~~

~~two first and second flexible tubes for insertion of treatment instruments, each of the first and second tubes having a distal end portion and a proximal end portion, each of the tubes being extended along an insertion section of the endoscope and the distal end portion of the tube being fixed in a state in which the distal end portion of the tube communicates with the cap section, when the cap section is attached to the endoscope;~~

~~first and second endoscopic treatment instruments for a mucous membrane resection work having insertion sections to be removably inserted in the first and second tubes, respectively, each of the first and second endoscopic treatment instruments having a first and second loop portion, respectively, at a distal end portion of the insertion section thereof, the first loop portion being inserted in the first tube such that it is projected from the distal end of the first tube broadened and disposed along the inner peripheral surface of the cylindrical body in a state in which the loop portion is engaged with one of the first projection portion and the second projection portion, when the insertion sections of the first and second endoscopic treatment instruments are inserted in the tubes; and~~

~~a first engagement portion which is provided at the distal end portion of the cylindrical body of the cap, the first engagement portion being configured to removably fix the first loop portion at a first fixing position inside the cylindrical body;~~

~~a second engagement portion which is provided at the distal end portion of the cylindrical body of the cap, the second engagement portion being configured to removably fix the second loop portion at a second fixing position inside the cylindrical body, and the second~~

fixing position at which the second loop portion is fixed by the second engagement portion
being closer to the proximal end of the cylindrical body than the first fixing position.

~~treatment instrument setting means for setting at the same time a first endoscopic treatment instrument setting state in which the loop portion of the first endoscopic treatment instrument removably inserted in one of the tubes is broadened and disposed on an inner peripheral surface of the cylindrical body in a state in which the loop portion of the first endoscopic treatment instrument is engaged with the first projection portion, and a second endoscopic treatment instrument setting state in which the loop portion of the second endoscopic treatment instrument removably inserted in the other tube is broadened and disposed on the inner peripheral surface of the cylindrical body in a state in which the loop portion of the second endoscopic treatment instrument is engaged with the second projection portion.~~

6. (Currently Amended) The endoscopic mucous membrane resection instrument according to claim 5, wherein the first endoscopic treatment instrument includes a ligator in which the first loop portion is formed of a ligation loop capable of tightly binding and ligating a living tissue, and

the second endoscopic treatment instrument is a diathermic snare in which the second loop portion is formed of a snare wire.

7. (Currently Amended) An endoscopic mucous membrane resection method comprising:

a resection instrument setting step of fitting an endoscopic mucous membrane resection instrument on a distal end portion of an insertion section of an endoscope, the endoscopic mucous membrane resection instrument being set in a state in which a first

diathermic snare is preset in a cap section such that a first loop portion of the first diathermic snare is engaged is removably fixed at a first fixing position inside a cylindrical body of the cap section on a first projection portion formed at a distal end portion of the cap section and the loop portion is broadened along an inner peripheral surface of the cap section;

 a step of inserting the endoscope and the resection instrument into a body cavity and moving a distal opening portion of the cap section toward a target to-be-resected mucous membrane;

 a step of causing a suction force to act within the cap section in a state in which the distal opening portion of the cap section is pushed on the mucous membrane, thereby sucking and raising a to-be-resected part of the mucous membrane within the cap section by a negative pressure;

 a step of reducing a size of the first loop portion of a snare wire of the first diathermic snare by operating the first diathermic snare, thereby tightly binding a proximal portion of a raised part of the mucous membrane;

 a first mucous membrane resection work step of causing a high-frequency current to flow in the snare wire while strangulating the proximal portion of the raised part by the first loop portion of the snare wire, thereby resecting the to-be-resected part of the mucous membrane;

 a step of removing the first diathermic snare used in the preceding steps from the resection instrument after the completion of the first mucous membrane resection work; and

 a second resection work step of resecting a remaining part of the mucous membrane, which is not resected by the first resection work,

the second resection work step including:

a step of moving the distal opening portion of the cap section toward a second to-be-resected part of the target mucous membrane in a state in which the first diathermic snare is not set in the resection instrument;

a step of causing a suction force to act within the cap section in a state in which the distal opening portion of the cap section is pushed on the second to-be-resected part of the mucous membrane, thereby sucking and raising the second to-be-resected part of the mucous membrane within the cap section by a negative pressure;

a step of broadening introducing a second loop portion of a second diathermic snare at a second fixing position inside the cylindrical body of the cap section, along an inner peripheral surface of the cap section and disposing the loop portion on a second projection portion which projects inward and is provided at a position spaced apart from the first projection portion the second fixing position being closer to a proximal end of the cylindrical body of the cap section than the first fixing position;

a step of largely raising the second to-be-resected part of the mucous membrane by sucking the second to-be-resected part more strongly than before insertion of the second diathermic snare;

a step of reducing a size of the second loop portion of a snare wire of the second diathermic snare by operating the second diathermic snare, thereby tightly binding a proximal portion of the second to-be-resected part of the mucous membrane;

a second resection work step of causing, like the first resection work, a high-frequency current to flow in the snare wire while strangulating the proximal portion of the to-

be-resected part by the second loop portion of the snare wire, thereby resecting the remaining to-be-resected part; and

a recovery step of recovering, after the completion of the second resection work, the resected part of the mucous membrane resected by the second resection work and the resected part of the mucous membrane resected by the first resection work in the state in which both the resected parts are sucked and held in the cap section, by taking out both the resected parts from the body cavity along with the endoscope.

8. (Currently Amended) An endoscopic mucous membrane resection method comprising:

a resection instrument setting step of fitting an endoscopic mucous membrane resection instrument on a distal end portion of an insertion section of an endoscope, the endoscopic mucous membrane resection instrument being set in a state in which two first and second diathermic snares are preset in a cap section such that first and second loop portions, respectively, of the two first and second diathermic snares are engaged removably fixed at first and second fixing positions, respectively, positioned inside a cylindrical body of the cap section, the second fixing position being closer to a proximal end of the cylindrical body of the cap section than the first fixing position on a projection portion formed at a distal end portion of the cap section and the loop portions are broadened along an inner peripheral surface of the cap section;

a step of inserting the endoscope and the resection instrument into a body cavity and moving a distal opening portion of the cap section toward a target to-be-resected mucous membrane;

a step of causing a suction force to act within the cap section in a state in which the distal opening portion of the cap section is pushed on the mucous membrane, thereby sucking and raising a to-be-resected part of the mucous membrane within the cap section by a negative pressure;

a step of reducing a size of the first loop portion of a ~~snare wire~~ of one of the first diathermic ~~snare~~ snare by operating said one of the diathermic ~~snare~~, thereby tightly binding a proximal portion of a raised part of the mucous membrane;

a first mucous membrane resection work step of causing a high-frequency current to flow in the ~~snare wire~~ first loop portion while strangulating the proximal portion of the raised part by the first loop portion of the first diathermic snare, thereby resecting the to-be-resected part of the mucous membrane;

a step of removing the first diathermic snare used in the preceding steps from the resection instrument after the completion of the first mucous membrane resection work; and

a second resection work step of resecting a remaining part of the mucous membrane, which is not resected by the first resection work,

the second resection work step including:

a step of moving the distal opening portion of the cap section toward a second to-be-resected part of the target mucous membrane;

a step of causing a suction force to act within the cap section in a state in which the distal opening portion of the cap section is pushed on the second to-be-resected part of the mucous membrane, thereby sucking and raising the second to-be-resected part of the mucous membrane within the cap section by a negative pressure;

a step of tightly binding a proximal portion of a raised part of the mucous membrane by the second loop portion of the snare wire by operating of the second diathermic snare ~~ether than the diathermic snare used in the first resection work;~~

a second resection work step of causing a high-frequency current to flow in the snare wire second loop portion while strangulating the proximal portion of the raised part by the second loop portion of the snare wire second diathermic snare, thereby resecting the remaining to-be-resected part; and

a recovery step of recovering, after the completion of the second resection work, the resected part of the mucous membrane resected by the second resection work and the resected part of the mucous membrane resected by the first resection work in the state in which both the resected parts are sucked and held in the cap section, by taking out both the resected parts from the body cavity along with the endoscope.

9. (Currently Amended) An endoscopic mucous membrane resection method comprising:

a resection instrument setting step of fitting an endoscopic mucous membrane resection instrument on a distal end portion of an insertion section of an endoscope, the endoscopic mucous membrane resection instrument including a transparent cap section detachably attached to the distal end portion of the endoscope, one diathermic snare and one ligator, the endoscopic mucous membrane resection instrument being set in a state in which a loop portion of the ligator is removably fixed at a first fixing position inside a cylindrical body of the cap section and a loop portion of the diathermic snare is removably fixed at a second fixing position inside the cylindrical body of the cap section, the second fixing position being closer to a proximal end of the cylindrical body of the cap than the first fixing

~~position engaged in advance on a first projection portion formed at a distal end portion of the cap section and the loop portion is broadened along an inner peripheral surface of the cap section, and also set in a state in which a loop portion of the diathermic snare is engaged on a second projection portion projecting inward at a position spaced apart from the first projection portion and the loop portion is broadened along the inner peripheral surface of the cap section;~~

 a step of inserting the endoscope and the resection instrument into a body cavity and moving a distal opening portion of the cap section toward a target to-be-resected mucous membrane;

 a step of causing a suction force to act within the cap section in a state in which the distal opening portion of the cap section is pushed on the mucous membrane, thereby sucking and raising a to-be-resected part of the mucous membrane within the cap section by a negative pressure;

 a step of reducing a size of the loop portion of ~~a ligation loop~~ the ligator by operating the ligator, thereby tightly binding a proximal portion of a raised part of the mucous membrane;

 a step of releasing the ligation loop portion of the ligator and keeping a state in which the proximal portion of the raised part of the mucous membrane is tightly bound by the ligation loop portion of the ligator;

 a step of sucking in the cap section the raised part of the mucous membrane tightly bound by the ligation loop portion of the ligator;

 a step of reducing a size of the loop portion of ~~a~~ the diathermic snare wire by operating the diathermic snare, thereby tightly binding an upper-side portion of the raised part

of the mucous membrane that is already tightly bound by the ligation loop portion of the ligator;

a resection work step of causing a high-frequency current to flow in the loop portion of the diathermic snare wire while strangulating the upper-side portion of the raised part of the mucous membrane by the loop portion of the diathermic snare wire, thereby resecting the to-be-resected part of the mucous membrane; and

a recovery step of recovering, after the completion of the resection work, the resected part of the mucous membrane resected by the resection work in a state in which the resected part is sucked and held in the cap section, by taking out the resected part from the body cavity along with the endoscope.